

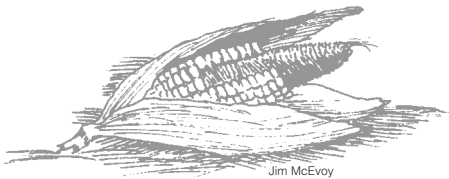
research management

findings

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Overwinter Food Plots for Pheasants

By James O. Evrard



Introduction

Habitat quantity and quality control long-term trends in Ring-necked Pheasant (*Phasianus colchicus*) populations, while a variety of factors, including weather, cause short-term fluctuations in pheasant numbers. The deleterious effects of severe winter weather on pheasants in Wisconsin were reviewed by Evrard (1996), who concluded that availability of winter food in the form of standing, unharvested corn (*Zea mays*) was a major limiting factor in northwest Wisconsin. Corn has been long recognized as the most important winter food for pheasants in Wisconsin, and McCabe et al. (1955) recommended that the “best way to assure a food supply for pheasants is to leave standing corn near areas of good winter cover.”

I investigated the value of corn food plots for pheasants and other wildlife on federal and state Waterfowl Production Areas where share-cropping with nearby private farmers was being evaluated as a tool for managing upland grassy waterfowl nest cover. This study was part of a larger research project to evaluate management techniques for increasing waterfowl and pheasant production in the pot-hole region of northwest Wisconsin (Evrard and Lillie 1987). Here, I report results of the corn food plot investigations.

Methods

Wildlife food plots were planted under sharecrop agreements. The Wisconsin Department of Natural Resources (DNR) received 20% of the ripe corn as its share and the farmer received the remaining 80%. The DNR furnished the land, while the sharecropper furnished the seed, fertilizer, herbicide and labor and machinery to plant and nurture the crop. The State's share of the corn was determined by the DNR just prior to harvest and was left unharvested over winter for wildlife food. The sharecropper harvested any corn that was remaining in the food plot in spring, prior to plowing and planting that spring.

Unharvested corn plots were examined several times each winter during the winters of 1983-84 (4 plots), 1984-85 (3 plots), and 1985-86 (3 plots), to document use by Ring-necked Pheasants and other wildlife. The food plots selected were located next to or near winter cover (emergent marsh vegetation, shrub carr, and upland sites with young evergreen or deciduous shrubs and trees). Wildlife use of the food plot was determined by observation of the animals and their sign. Snow depths and conditions were measured at the time of food plot examination. The amount of corn used by wildlife was determined by measuring the uneaten corn remaining at spring snowmelt. A random sample of corn rows was examined by walking the rows and counting the number of ears of corn removed and/or eaten from each corn stalk. The percentage of ears remaining on the corn stalks in the rows examined was used to estimate the percent use of corn on the entire plot.

Results

Corn food plots examined averaged 3.6 acres in size with a range of 0.6 to 7.2 acres (Table 1). Ring-necked Pheasant use of the corn food plots was subjectively judged to be low (1-3 birds) to moderate (4-7 birds) per plot, probably a reflection of the relatively low pheasant density in the study area (Evrard 1996). In addition to pheasants, a variety of wildlife species used corn plots; thirteen bird species and ten mammal species were observed using the corn plots (Table 2). Some wildlife species were dependent upon other species to be able to use corn as a food source. For example, Black-capped Chickadees and Dark-eyed Juncos were seen feeding on corn endosperm left after squirrels had eaten the plant embryos from the corn kernels or seeds.

Snow depths in the food plots reached 24 inches during the winter of 1983-84, 12 inches during the winter of 1984-85, and 16 inches during the winter of 1985-86. Since Gates and Hale (1974) determined that packed snow deeper than 6 inches was sufficient to cover waste corn and create food stress among pheasants, it was obvious that pheasants using this plot needed alternative food sources during the 3 winters. On 28 December 1983, the western 30 feet of a corn food plot adjacent to an open field was drifted full of snow, covering the corn ears in that strip. By 24 January 1984, the width of the strip drifted with snow had increased to 40 feet and the southern 10 feet of food plot was also drifted full of snow.

Wildlife used a mean of 11.8% of the available corn in 4 food plots examined during the severe winter of 1983-84 (Table 1). The plot with 3% of the corn used was adjacent to a large field of standing overwinter corn on private land. The plot with 27% usage had a considerable number of white-tailed deer feeding on the corn. During the winter of 1984-85, 10.3% of the corn was consumed in 3 food plots (Table 1). In addition, a late March blizzard knocked down 40% of corn stalks in 1 plot, 37% in another plot, and 14% in the third plot. Wildlife used only 5.7% of the corn in 3 plots in the winter of 1985-86 (Table 1). The most heavily used plot (9% usage) had the outer 5 rows of corn completely consumed by ruffed grouse, squirrels, and white-tailed deer.

Table 1. Percent of corn consumed by wildlife in food plots, winters 1983-86.

Winter	Percent Consumed	Plot Size (acres)
1983-84	3	5.0
	8	0.6
	9	0.8
	27	2.2
mean	11.8	2.2
1984-85	6	5.6
	10	4.0
	15	5.6
mean	10.3	5.1
1985-86	3	7.2
	5	2.4
	9	2.2
mean	5.7	3.9

Table 2. Wildlife species observed using corn plots, winters 1983-86.

Birds

Ruffed Grouse (*Bonasa umbellus*)
 Gray Partridge (*Perdix perdix*)
 Red-bellied Woodpecker (*Melanerpes carolinus*)
 Hairy Woodpecker (*Picoides villosus*)
 Downy Woodpecker (*Picoides pubescens*)
 Blue Jay (*Cyanocitta cristata*)
 American Crow (*Corvus brachyrhynchos*)
 Black-capped Chickadee (*Parus atricapillus*)
 White-breasted Nuthatch (*Sitta carolinensis*)
 European Starling (*Sturnus vulgaris*)
 Northern Cardinal (*Cardinalis cardinalis*)
 Dark-eyed Junco (*Junco hyemalis*)
 American Tree Sparrow (*Spizella arborea*)

Mammals

White-tailed jackrabbit (*Lepus townsendii*)
 Eastern cottontail (*Sylvilagus floridanus*)
 Eastern fox squirrel (*Sciurus niger*)
 Eastern gray squirrel (*Sciurus carolinensis*)
 Red squirrel (*Tamiasciurus hudsonicus*)
 Mice (mostly deer mice, *Peromyscus maniculatus*)
 Red fox (*Vulpes vulpes*)
 Common raccoon (*Procyon lotor*)
 Long-tailed weasel (*Mustela frenata*)
 White-tailed deer (*Odocoileus virginianus*)

Conclusions and Management Recommendations

Winter wildlife food plots could be considered an example of single species wildlife management, with little benefit to the entire wildlife community. However, a wide variety of wildlife species used the corn food plots. Nearly all the mammals active during the winter, as well as a high percentage of the winter birds resident in the study area, used the food plots.

Gates and Hale (1974) recommended corn food plots from 1 to 2 acres in size adjacent to or near winter cover. Based upon the conditions encountered in this study, the **minimum** size of corn food plot needed to feed wildlife including Ring-necked Pheasants is approximately 1.7 acre. This recommendation is based upon the maximum of 0.6 acres of corn consumed in 1 food plot (27% of a 2.2-acre plot) and maximum snow drifting of 40 feet on the sides of the plot. A 240 feet by 240 feet square plot would be approximately 1.3 acre. Drifting snow, if equal on all sides (40 feet), would cover 0.7 acre of that rectangle, leaving a balance of about 0.6 acre (160 feet x 160 feet) in the middle of the food plot available as wildlife food. Size of the food plot could be reduced if there were adequate windbreaks to prevent snow drifting on the sides of the plot.

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Acknowledgments

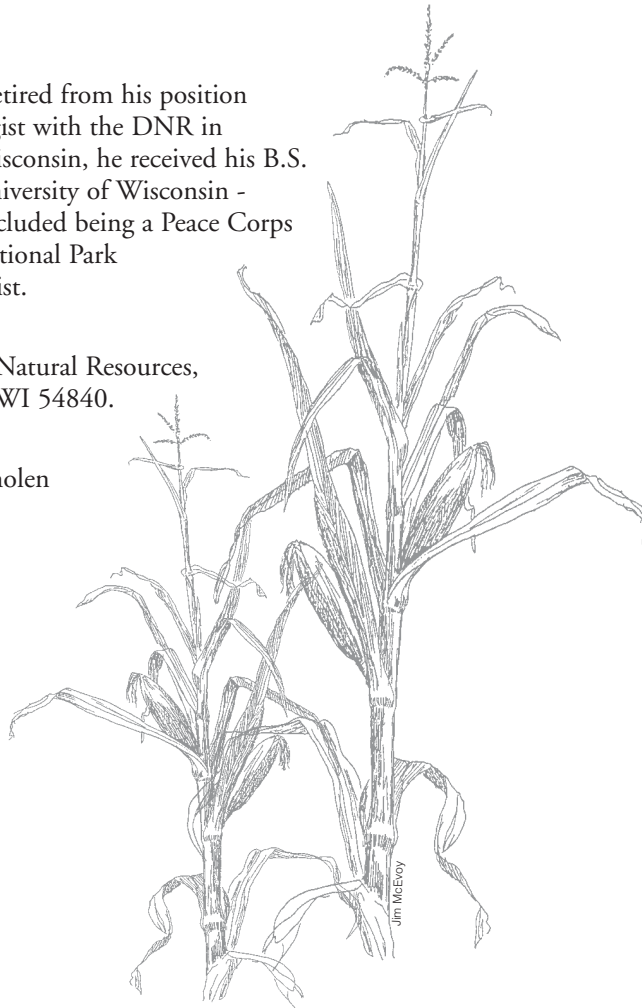
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